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TRANSMITTAL LETTER (General - Patent Pending)	Docket No. 121027-003

In Re Application Of: **Satoru TANGE et al.**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/821,230	March 29, 2001	Christopher Pratt	35684	1771	

Title: **COMPOSITION SHEET AND PROCESS FOR MAKING THE SAME**

COMMISSIONER FOR PATENTS:

Transmitted herewith is:

Revised Brief on Appeal with Exhibits "A" and "B" (one (1) original and two (2) copies)

in the above identified application.

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Michael S. Gzybowski

Signature

Dated: **March 28, 2005**

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(Date)

Michael S. Gzybowski

Signature of Person Mailing Correspondence

Michael S. Gzybowski

Typed or Printed Name of Person Mailing Correspondence

cc:

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit:	1771
Attorney Docket No.:	121027-003
Applicant:	Satoru TANGE et al.
Invention:	COMPOSITION SHEET AND PROCESS FOR MAKING THE SAME
Serial No:	09/821,230
Filed:	March 29, 2001
Examiner:	Christopher Pratt

Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231

on March 28, 2005

Michael S. Gzybowski

BRIEF ON APPEAL

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to Appellants' Notice of Appeal filed December 3, 2004 in connection with the above-identified application, Appellants submit the present Brief on Appeal.

REAL PARTY IN INTEREST

Appellants assigned this application to Uni-Charm Corporation in an assignment which was

executed by the inventors on June 6, 2001, and recorded in the United States Patent and Trademark Office on July 2, 2001 at Reel No. 011939 and Frame No. 0257.

RELATED APPEALS AND INTERFERENCES

There are no related cases involved in any appeal procedures or Interferences.

STATUS OF CLAIMS

Claims 1 and 2 are pending in this application. Claims 1 and 2 stand under Final Rejection, from which rejection of claims 1 and 2 this appeal is taken. Claim 3-8 are directed to a non-elected invention. No other claim(s) is/are pending.

STATUS OF AMENDMENTS

No Amendments after Final were filed in this application.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to a composite sheet 10 that includes an elastically stretchable fibrous layer 3 having upper and lower surfaces as shown in Fig. 1 and discussed in the paragraph bridging pages 5 and 6 of appellants' specification.

The composite sheet 10 further includes an inelastically stretchable fibrous layer 2 formed from inelastically stretchable continuous fibers 6 as shown in Fig. 1 and discussed in the paragraph bridging pages 5 and 6 of appellants' specification.

The elastically stretchable layer 3 and the inelastically stretchable layer 2 are bonded together intermittently in first and second directions orthogonal to each other as disclosed in the second full paragraph on page 3 of appellants' specification.

As taught in the last full paragraph on page 3 of appellants' specification, the inelastically stretchable continuous fibers 6 of the inelastically stretchable fibrous layer 2 are oriented substantially in one direction so that a tensile strength S_1 of said composite sheet 10 in the first direction and a tensile strength S_2 of said composite sheet in the second direction define a ratio S_1/S_2 of 3.0 or higher.

As taught on page 9, lines 17-21 composite sheet 10 has a stretch efficiency in the first direction that is in a range of about 60 to 90%.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1 and 2 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Morman.

Under this rejection the Examiner states that:

> Morman describes a composite elastic material which has at least one elastic layer, (which corresponds to the claimed elastically stretchable layer), (column 3, lines 30-33). Morman describes the elastic layer as jointed to at least one necked materials at least at three locations arranged in a nonlinear configuration (which corresponds to the claimed inelastically stretchable fibrous layer which is bonded orthogonally), (column 3, lines 33-36). Morman describes the composite elastic material has stretch and recovery in at least on direction, which corresponds to the claimed inelastic fibrous layer in substantially one direction), (column 3, lines 35-52).

The Examiner concedes that Morman "is silent about the stretch efficiency of claim 2."

The Examiner states that "Morman describes stretch and recovery, (column 3, lines 40-53)" and takes the position that:

> It would have been obvious....to optimize the stretch efficiency in one direction motivated with the expectation that Morman describes the general conditions of the claims invention it has been held that discovering optimum value for ranges, corresponding to the stretch efficiency involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

In the Advisory Action mailed September 23, 2004 the Examiner stated that:

> It was argued "oriented substantially in one direction" precludes the spunbond of Morman. For Applicant's benefit, it should be noted that spun-bond products are defined in the industry as follows (from a common textile dictionary):
>
> > **SPUN-BONDED PRODUCTS**: Nonwoven fabrics formed by filaments that have been extruded, drawn, then laid on a continuous belt. Bonding is accomplished by several methods such as by hot roll

> calendaring or by passing the web through a saturated-steam chamber at elevated pressure.

Given this definition is clear that the filaments of a spunbond are generally oriented along the direction of the collection belt, i.e., they MUST be so oriented. "Substantially in one direction" is not defined anywhere in the claims or the disclosure, therefore it is not seen how the phraseology excludes spunbond products. It is true that such filaments can incorporate a good deal of non-linear configuration as they are laid down, but they must continue to extend in one direction, and that is the direction of the belt motion.

ARGUMENT

Appellant respectfully urges that claims 1 and 2 patentably distinguish from the applied reference combination as the claimed subject matter would not have been obvious within the meaning of 35 U.S.C. §103(a).

It is important to note the prior art discussed on pages 1 and 2 of appellants' specification over which appellants distinguish their invention. As stated on pages 1 and 2:

> Japanese Patent Application Publication No. 1994-184897A describes elastically stretchable composite stock material obtained by a process comprising steps of stretching inelastic material to neck this material, bonding this material as it is **necked** to an elastically stretchable sheet which is under a tension at three or more non-linearly arranged regions and finally relieving the stretchable sheet of its tension. So far as the necked material is of fibrous nature, such process of prior art enables the necked material to form a plurality of gathers as the elastically stretchable sheet is relieved of its tension and thereby to convert a rubber-like touch peculiar to the surface of the elastically stretchable sheet to a comfortable cloth-like touch without deterioration of a desired stretchability of the elastically stretchable sheet.
>
> According to this technique of prior art, the necked material is obtained by stretching,

> for example, a spun bond nonwoven fabric comprising thermoplastic synthetic fibers fused together in one direction. Of the fibers unevenly distributed in this nonwoven fabric, some are plastically deformed in the one direction and thereby actually stretched while the others are merely reoriented in the one direction as the nonwoven fabric is stretched in the one direction. The actual stretched fibers have their diameters reduced and the merely reoriented fibers maintain their initial diameters. Consequently, the elastically stretchable composite stock material obtained in this manner is disadvantageously accompanied with a remarkable unevenness of the fiber diameters. This may lead to the unevenness in touch as well as in appearance of the product.

It is noted that the prior art discussed on pages 1 and 2 of appellants' specification is very similar to the teachings of Morman and involves essentially the same use of a neckable material which would, as discussed by appellants, result in some of the component fibers being plastically deformed in one direction and other fibers being reoriented in the direction as the nonwoven fabric is stretched in the one direction. The actual stretched fibers will have their diameters reduced and the reoriented fibers will maintain their initial diameters. Consequently, the elastically stretchable composite stock material obtained in this manner is disadvantageously accompanied with a remarkable unevenness of the fiber diameters.

Appellants' differentiation over the prior art which is similar to Morman is a composite sheet that includes an inelastically stretchable layer of continuous fibers are oriented substantially in the one direction. As a result, the fibers have more uniform diameters and the resulting composite sheet has a tensile strength S_1 in the first direction and a tensile strength S_2 in the second direction which define a ratio S_1/S_2 of 3.0 or higher (as recited in claim 1).

It is important to note that appellants' claim 1 recites that the inelastically stretchable continuous fibers of the inelastically stretchable fibrous layer are "oriented substantially in said one direction"...."so that a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher."

In addition to requiring a specific structure, i.e. the orientation of the fibers in one direction, independent claim 1 requires a resulting or qualifying function or rather physical property result, i.e., "so that a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher."

The Examiner has attempted to establish that Morman teaches that the fibers of the neckable material are "oriented substantially in one direction."

In this respect the Examiner has relied upon Morman as teaching that the neckable material can be a spunbonded web.

The Examiner further offered the definition of "Spun-Bonded Products as:

> **SPUN-BONDED PRODUCTS**: Nonwoven fabrics formed by filaments that have been extruded, drawn, then laid on a continuous belt. Bonding is accomplished by several methods such as by hot roll calendaring or by passing the web through a saturated-steam chamber at elevated pressure.

The Examiner has argued that:

> Given this definition is clear that the filaments of a spunbond are generally oriented along the direction of the collection belt, i.e., they MUST be so oriented. "Substantially in one direction" is not defined anywhere in the claims or the disclosure, therefore it is not seen how the phraseology excludes spunbond products. It is true that such filaments can incorporate a good deal of non-linear configuration

> as they are laid down, but they must continue to extend in one direction, and that is the direction of the belt motion.

Appellants have conducted an internet search on the terms "Spunbonded" and "Random" (combined together) and received 186 "hits" using the search engine Yahoo.

The first two references which were opened and reviewed are attached as Exhibit "A" and "B."

Exhibit "A," Thüringisches Institut für Textil, teaches a unit for producing spunbonded nonwovens that are randomly laid down.

Exhibit "B," Spunbonded Non-Wovens, teaches that the "identifying" structure of a spunbonded is "filament fibers randomly swirl throughout the fabric."

At column 2, lines 32-35 Morman teaches:

> As used herein, the term "nonwoven web" means a web that has a structure of individual fibers or thread which are interlaid but not in an identifiable, repeating manner.

The Examiner has not cited the authority for his definition of Spun-bonded Product. Nevertheless, it is noted that the Examiner's definition does not conflict with Exhibits "A" or "B" since the Examiner's definition states that the "filaments that have been extruded, drawn, then laid on a continuous belt" and thereafter bonded.

What is in conflict is the Examiner's interpretation of "Spun-bonded Product" as reading on appellants' claim limitation that the filaments MUST be oriented "Substantially in one direction."

The Examiner's stated position is that because "the filaments of a spunbond are generally oriented along the direction of the collection belt, i.e., they MUST be [so] oriented..."Substantially in one direction."

This interpretation is: 1) not supported by the teachings of Morman at column 2, lines 32-35; 2) not supported by the Examiner's definition of "Spun-bonded Product;" 3) not supported by Exhibits "A" or "B;" 4) not commensurate with appellants' own disclosure.

Appellants teach that the continuous inelastic fibers are oriented in substantially one direction by the use of a first conveyor running at a velocity V_1 and a second conveyor provided at downstream of the first conveyor and running at a velocity V_2 so that a ratio V_2/V_1 may lie in a range of 1.05.about.10 and the fibers are reoriented between the conveyors.

It is clear that some additional step, beyond accumulating the continuous inelastic extruded fibers, has to be taken to ensure that they extend in substantially one direction in order to obtain a "a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher."

Morman does teach that the neckable material from supply roll 14 is placed under tension between the first S-roll arrangement 18 and the bonder roll arrangement 26.

However, because Morman uses a neckable material from supply roll 14, the material is designed to be "constricted" when a tensioning force is applied thereto. The tensioning between the first S-roll arrangement 18 and the bonder roll arrangement 26 which cause the necking does not orientate the fibers in substantially one direction, and Morman is no different than the prior art

discussed on pages 1 and 2 of appellants' specification. That is when the neckable material of Morman is tensioned, if sufficient force is used, some of the component fibers will be plastically deformed in one direction and other fibers will be merely reoriented in the direction as the neckable material is stretched in the one direction. The actual stretched fibers will have their diameters reduced and the reoriented fibers will maintain their initial diameters so that there resulting material will be structurally different from appellants' invention which requires orienting the inelastically stretchable fibers in substantially one direction.

Morman does not teach that the multi-direction stretch composite elastic material has a tensile strength S_1 in a first direction and a tensile strength S_2 in a second direction that produces a ratio of S_1/S_2 of 3.0 or higher.

In the Advisory Action of November 15, 2004 the Examiner states that he has "weighed the effect" of the limitation that:

> said inelastically stretchable continuous fibers of said inelastically stretchable fibrous layer being oriented substantially in said one direction so that a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher

and has concluded that:

> In effect, the limitation is insufficient to show patentability since it is not defined how the limitation affects the structure or chemistry of the final product claimed and instead merely seems to set forth a performance property inherent to providing the claimed material features.

The Examiner's position overlooks that appellants' claim requires that the inelastically stretchable continuous fibers are:

(a) oriented substantially in said one direction

so that

(b) a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher.

These are elements of appellants' claimed invention and cannot be dismissed as the Examiner has attempted to do.

The claimed structure is directly related to the claimed tensile strength ratio.

Appellants' achieve the claimed tensile strength ratio by orienting the inelastically stretchable continuous fibers after the inelastically stretchable web 52 is formed (see Fig. 3).

Since Morman teaches a necked material, when the neckable material of Morman is tensioned, if sufficient force is used, some of the component fibers will be plastically deformed in one direction and other fibers will be merely reoriented in the direction as the neckable material is stretched in the one direction. The actual stretched fibers will have their diameters reduced and the reoriented fibers will maintain their initial diameters. From such a result, there is no basis for concluding that Morman subsequently orients the individual fibers of the necked material substantially in one direction so that a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher.

Moreover, the Examiner's position that Morman's teaching of a spunbonded material means that the filaments MUST be "Substantially in one direction" as the spunbonded material fibers are collected on a support, does not result in "a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher" as claimed.

Even more so, the requirement that Morman neck the resulting sponbonded product to constrict one dimension, has not been considered in the Examiner's position that the pre-necked spunbonded material meets the limitations of appellants' claims. The Examiner must account for the subsequent processing taught by Morman or abandon his position that the laiddown spunbonded material and the subsequently processed material both read on appellants' limitation that the inelastically stretchable fibers are oriented in substantially one direction.

Claim 2 requires that the composite sheet has a stretch efficiency in the first direction that is in a range of about 60 to 90%.

Morman does not teach stretch efficiency.

In rejecting claim 2 under 35 U.S.C. §103 the Examiner has taken the position that:

> It would have been obvious....to optimize the stretch efficiency in one direction motivated with the expectation that Morman describes the general conditions of the claims invention it has been held that discovering optimum value for ranges, corresponding to the stretch efficiency involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

In re Aller the patent claim on appeal was found to encompass a prior art process for treating isopropyl benzene hydroperoxide with sulphuric acid wherein the hydroperoxide is decomposed into phenol and acetone.

The court found that: "[t]he process of appellants is identical with that of the prior art, except that applicants' claims specify lower temperatures and higher sulphuric acid concentrations than are shown in the reference."

The court considered arguments submitted by appellants regarding unexpected results which could not be discovered by one skilled in the art.

The court held that appellants' claimed process was merely different in degree and not in kind from the reference process so that criticality of the claimed ranges was not shown.

The facts and holding of *In re Aller*, are not at all applicable to the present situation in which Morman is not at all concerned with tensile strength ratios. (Note the criticality reviewed by the court in *Aller* involved reaction yields, reactants and products).

In the present case there is no teaching, suggestion or reference to controlling the *alignment* of the fibers of the inelastic layer in Morman to achieve a particular tensile ratio or stretch efficiency. As noted above, Morman expressly teaches away from aligning the fibers along a common direction or orientation, so that it would go against the teachings of Morman to orientate the fibers along a common direction. (See *Ex parte Hartmann*, 186 U.S.P.Q. 366 (PTO Bd App 1977)

Accordingly, the differences between Morman and the present invention do not involve a marginal degree as in the case of *In re Aller*.

Therefore, the Examiner cannot rely upon *In re Aller* as supporting the conclusion that "It would have been obvious....to optimize the ratio of the tensile strengths in the first direction to the second direction."

Morman simple does not teach or suggest the optimization, any benefit or motivation for the optimization, or appellants' particular manner for affecting the tensile strength.

Patentability, as opposed to obviousness, can be found where an invention proceeds contrary to the teachings of the prior art, as in the present case in which Morman teaches against orienting the fibers in a common direction or identifiable, repeating manner.

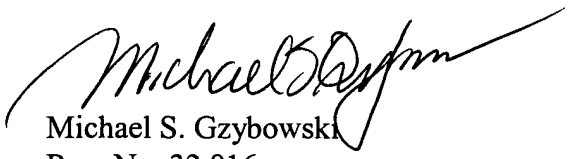
For the reasons advanced above, Appellant respectfully contends that the rejection of claims 1 and 2 as being obvious under 35 U.S.C. §103(a) over Morman is improper because the examiner has not met the burden of establishing a *prima facie* case of obviousness.

Reversal of the rejection on appeal is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of

time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,



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CLAIMS APPENDIX

Claim 1. A composite sheet comprising:

an elastically stretchable fibrous layer having upper and lower surfaces; and

an inelastically stretchable fibrous layer formed from inelastically stretchable continuous fibers,

the elastically stretchable layer and the inelastically stretchable layer being bonded together intermittently in first and second directions orthogonal to each other,

said inelastically stretchable continuous fibers of said inelastically stretchable fibrous layer being oriented substantially in said one direction so that a tensile strength S_1 of said composite sheet in said first direction and a tensile strength S_2 of said composite sheet in said second direction define a ratio S_1/S_2 of 3.0 or higher.

Claim 2. The composite sheet according to Claim 1, wherein said composite sheet has a stretch efficiency in said first direction that is in a range of about 60 to 90%.

EVIDENCE APPENDIX

Exhibit "A," Thüringisches Institut für Textil, teaches a unit for producing spunbonded nonwovens that are randomly laid down.

Exhibit "B," Spunbonded Non-Wovens, teaches that the "identifying" structure of a spunbonded is "filament fibers randomly swirl throughout the fabric."

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Now the TITK Rudolstadt also with unit for production of spunbonded nonwovens

In April of this year the institute Thüringisches Institut für Textil- und Kunststoff-Forschung in Rudolstadt has started the operation of the pilot unit SPV 600 for the production of spunbonded nonwoven. At present the unit is used for implementation of research projects and for supply of services.

The spunbonded nonwoven machine has - in dependence on the used polymer - a nominal capacity of 30...80 kg/h and allows a weight per unit area of 20...250 g/m² at a width of the nonwoven of 0.6m. The TITK is using the unit for development works for partners in industry and science. Other services of the TITK for material testing and processing are offered in this framework as well. Included are specific material tests on thermoplastic polymers and textile-physical testings for characterization of filaments and spunbonded nonwovens.

The unit for spunbonded nonwovens can be used for the production of random laid nonwovens of thermoplastic moulding materials, for example PP, PE or selected biological degradable polymers. With a throughput of already 30 kg/h technological adjustable parameters can be customized flexibly to the needs of the customers.
The unit offers an opportunity of technological influence on the process stages filament cooling, filament drawing/drawing-off and formation of the nonwoven by controlled suction and swirling of the process air. With this it becomes possible to diversify geometrical and textile-physical properties of the filaments and of the of them produced spunbonded nonwovens.
Furthermore we offer possibilities and solution proposals for the processing of the slightly bonded random laid nonwovens with different finishing processes like: impregnating, spraying, powdering or laminating /coating.
The unit for spunbonded nonwovens offers the opportunities for combination of high-performance materials with innovative technology and to use the products for technical applications like for instance for various light constructions.

The picture shows the pilot unit SPV 600 for spunbonded nonwovens.

EXHIBIT
tabbies
A

SPUNBONDED NON-WOVENS

Structuring Process

- continuous extrusion of filament fibers in a random fashion unto a collection surface
- further adhered or bonded by thermal bonding, mechanical entanglement, adhesive bonding or using etched filament surfaces that hold fibers together

Identifying the Structure

- filament fibers randomly swirl through the fabric
- appears melted and without pattern (spun-laced always has a distinct pattern)
- paper-like stiffness and sheen, although made in a variety of weights and thicknesses

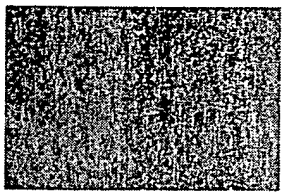
Performance Characteristics

- Surface of a typical spunbonded
- varies from firm, stiff hand to soft, non-woven fabric
- no grain orientation
- excellent strength to weight ratio

Common Fabric Characteristics and Uses

- major use for geotextiles: road bed liners, land-fill liners and filters, landscape containment, tree root growth containment
- clothing interlinings, show liners
- carpet backings, wall-paper backings, packaging, vinyl film backings

TEXTILE EXAMPLE



spunbonded
interfacing

Back to Non-wovens > Back to Textile Structure Guide

EXHIBIT
tabbies
B